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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

ATTY.'S DOCKET: HAYNS=1

3-7-03

In re Application of:

) BOX AF

10/3

)

Andrew HAYNS

) Art Unit: 1724

)

Appln. No.: 09/202,500

) Examiner: I. Cintins

)

Filed: March 24, 1999

) Washington, D.C.

)

For: LIQUID AND GAS PURIFICATION...) February 27, 2003

)

) Confirmation No. 2980

BRIEF ON BEHALF OF APPELLANT

Honorable Director
Washington, D.C. 20231

Sir:

The present Appeal is taken from the Action of the Examiner in finally rejecting claims 18-23 and 30-33. A clean copy of these claims, double-spaced, appears in the appendix to this Brief.

REAL PARTY IN INTEREST

The owner of the present application is Axholme Resources Limited, which is owned by Plymouth Products, Inc. of Sheboygan, Wisconsin (a Delaware Corporation), a wholly owned subsidiary of Pentair, Inc. of St. Paul, Minnesota.

RELATED APPEALS AND INTERFERENCES

To the knowledge of undersigned there are no related appeals or interferences.

STATUS OF THE CLAIMS

Claims 1-17, 24-29 and 34 are cancelled. Claims 18-23 and 30-33 are rejected.

STATUS OF AMENDMENTS

As understood, all amendments have been entered.

SUMMARY OF INVENTION

Briefly, the present invention relates to a filter for the removal of organic and other pollutants from liquids and gases (introductory paragraph at the top of page 1 of Appellants specification¹; page 1, line 34; page 3, line 23 and 23; page 4, lines 10 et seq; page 10, lines 11 et seq; and elsewhere). The filter of the present invention comprises a sheet-like matrix (column 1, line 35; page 3, lines 15, 28, 33-34; page 10, line 17) and desirably (but not essentially) has a thickness of 3-4mm (again, page 3, lines 33-34; claim 32) and a density of 0.01-0.18gcm⁻³ (page 3, line 14; claim 31; page 10, lines 11 et seq).

¹ Unless indicated otherwise, references hereinafter are to Appellant's specification.

Incorporated in the sheet-like matrix is a base material formed substantially of cellulose fibers onto which is adsorbed a composition comprising one or more aliphatic carboxylic acids having hydrocarbon chains of 8-20 carbon atoms (sentence spanning pages 1 and 2). As stated in the sentence spanning pages 2 and 3:

It is thought that the carboxylic acids are adsorbed onto the surface of the cellulose fibers by way of the carboxylic -COOH functional group, either through hydrogen bonding or through the formation of cellulose esters containing an -O-CO-R group formed with the hydroxyl -OH groups on the cellulose rings. However the carboxylic acids are bonded to the cellulose fibers, the result is that the material . . . of the present invention comprises cellulose fibers from which project hydrophobic hydrocarbon chains.

The projecting hydrophobic hydrocarbon is called for specifically in claim 33.

The preferred carboxylic acids are stearic acid and palmitic acid (page 2, lines 5-9; claim 20).

The matrix itself, which holds the cellulose fibers on which are adsorbed the aliphatic carboxylic acid, may be formed from any number of materials including non-woven fiberous materials, open-cell foam materials or a cotton or viscose gauze (page 3, lines 9-12; claims 21-23).

The hydrophobic hydrocarbon tails of the carboxylic acids which are adsorbed on the cellulose fibers attract hydrocarbon pollutants and repel water during filtration as stated at the top of page 3 as follows:

... the hydrophobic hydrocarbon tails of the carboxylic acid residues serve to attract the hydrocarbon pollutants to the material and to repel water, thereby providing the required separation.

As stated at page 10, lines 32-36, contaminated fluid is passed through the filter. When the filter becomes saturated with "the hydrocarbon pollutants, [it] can then be gathered up and used as a fuel stock" (page 3, lines 6-8).

ISSUES

There is only one main issue, namely whether or not any of Appellant's claims would have been obvious (as per 35 U.S.C. §103) to the person of ordinary skill in the art at the time the present invention was made from a consideration of Wiegand et al USP 4,070,287 (Wiegand) in view of Novak USP 1,958,202 (Novak). There are a number of sub-issues as well including, *inter alia*,

whether or not the proposed combination would have been obvious to the person of ordinary skill in the art at the time the present invention was made;

whether or not such combination, if obvious, would reach the claimed invention, i.e. would correspond to the claimed subject matter; and

whether or not the prior art would have provided any reasonable expectation of Appellant's claimed filter material from a consideration of Wiegand and Novak together.

Other sub-issues will become apparent from Appellant's argument section appearing below.

GROUPING OF CLAIMS

Appellant's claims do not all stand or fall together for reasons pointed out below in the "Argument" section.

However, for purposes of this appeal, claims 19-21 and 30-32 may be considered together with main claim 18. Each of claims 22, 23 and 33 should be considered separately.

Appellant makes no admissions that any of the claims are or are not patentably distinct from one another.

ARGUMENT

Appellant's claims are all rejected under §103 as allegedly obvious from a consideration of Wiegand in view of Novak. To the contrary, Appellant's claimed subject matter would not have been obvious to a person of ordinary skill in the art at the time the present invention was made from Wiegand in view of Novak. Appellant believes and respectfully submits

that there is nothing in the record to support the Examiner's allegation of the obviousness of combining the two citations in any way whatsoever, let alone in a way which would correspond to or lead to Appellant's claimed subject matter.

Appellant respectfully submits that the only place where the Examiner could have gotten the idea to combine the diverse citations was from Appellant's own disclosure which of course was not available as prior art.

Appellant's invention as claimed would not have been *prima facia* obvious to the person of ordinary skill in the art because the prior art provides no motive, no incentive, no reason and no purpose for the proposed combination.

The Examiner has not met his burden.

I - The Errors In The Rejection

The rejection is erroneous because there is no reason for one of ordinary skill in the art of Wiegand to have even considered Novak which relates to an entirely different art, namely papermaking, particularly in view of the facts that (1) Wiegand appears to suggest no advantage in using any sizing agent at all, (2) the use of a sizing agent would simply increase costs without any apparent benefit, and (3) the teachings of Novak relate to the solution of a problem which is entirely irrelevant in Wiegand. In other words, the rejection

is erroneous because the proposed combination makes no sense, unless one has first looked at Appellant's specification.

The rejection is erroneous because, even if the combination were obvious, the resultant reconstruction would not correspond to what is claimed.

Other errors in the rejection will be apparent from the arguments appearing below.

II - What The Prior Art Discloses

Wiegand discloses a sorbent for depositing on top of a pollutant oil film floating on water (e.g., col. 2, lines 36-53) where the sorbent will float, so that the sorbent will absorb and remove the oil film from the surface of the water. The Wiegand sorbent constitutes blends of polymeric fibers and cellulosic fibers which may be bonded together into a web or mat-like structure or blended in an unbonded form and retained by a fine mesh net-like enclosure. The polymeric fibers must be present in an amount of at least 25% by weight (col. 3, line 40) and may be foamed (col. 2, line 62; col. 3, line 26). As indicated at column 2, lines 7 and 8, part or all of the cellulosic fiber may be sized with a water repellent material.

Insofar as the sizing materials for the sized fibers are concerned, the only example given is reference to Formula NO. 1 from USP 2,754,206, a copy of which is attached (see column 4 of USP '206 and column 3, lines 45-48 of Wiegand).

FORMULA NO. 1	
Material	Parts by Weight
Crude Paraffin Wax	3190
Rosin	200
Bentonite	150
Aluminum Sulfate $\text{Al}_2(\text{SO}_4)_3$	900
Water	14000

Example 1 of Wiegand produces a 1" thick mat-like structure having a density between 2 and 4 pounds per cubic foot formed of about 25% polyethylene fibers, about 65-68% sulfite wood fibers (50% sized and 50% unsized) and about 7% by weight polyvinylacetate binder.

Example 2 produces a similar product of about 80% by weight polyethylene fiber, the wood fibers are unsized and the binder is phenolic resin in an amount of about 15% by weight.

Example 4 is similar to Example 3, except the mat-like structure is only one-half inch thick and comprises about 90% by weight polyethylene foamed fibers, and wherein the binder is melamine resin in an amount of about 5% by weight. Again, the sulfite wood fibers are unsized.

Whether or not the cellulosic fibers are sized or unsized appears to be largely irrelevant in Wiegand (col. 3, lines 43-45). As best can be determined from the general tenor

of the Wiegand disclosure, the presence of the polyethylene fibers eliminates the need for sized cellulose fibers.

As stated in the first sentence of Novak, it relates to "a sizing material for use in treating fiberous material for use in paper, comprising a water insoluble, fatty acid soap." The purpose of the sizing in Novak is to provide a water resistant paper, and such sizing is usually provided in order to give the paper wet strength.

In order to reduce foaming during paper making (page 1, lines 11-24), Novak discloses what in essence can be termed as forming of the soap *in situ* by using an emulsion of the fatty acid itself and reacting the fatty acid with a precipitating agent, e.g. aluminum sulfate, to form an aluminum soap, e.g. aluminum oleate (page 1, lines 36-48 and lines 81-89). The fiber is then processed into paper in the conventional way (page 1, lines 90-95).

The operation is exemplified in Novak using oleic acid and aluminum sulfate (page 1, lines 36-45) to produce aluminum oleate as the insoluble, fatty acid soap used as the sizing material. However, Novak also indicates that "any equivalent fatty acids such as palmitic, stearic, linoleic, oleostearic, or mixtures of fatty acids which are liquid below the boiling point of water" may be used in place of oleic acid

to produce "insoluble metalics soaps by employing the method described above" (page 1, lines 96-104).

Similarly, precipitating agents other than aluminum sulfate may be used (page 2, lines 4-10) to form the water insoluble fatty acid soap.

III - Features Recited In Appellant's Claims Which Are Not Made

Obvious By The Proposed Combination

As regards main claim 18, the prior art does not show or make obvious a "filter material comprising [both (1)] a sheet-like matrix [and (2)] a material comprising a base formed substantially of cellulose fibers...", wherein the base of cellulose fibers is incorporated in the matrix.

Even in combination, the prior art does not show or make obvious even a "filter".

The prior art does not show or make obvious the recited "cellulose fiber onto which is adsorbed a composition comprising one or more aliphatic carboxylic acids having hydrocarbon chains consisting of 8-20 carbon atoms."

As regards claim 22, the prior art does not show or make obvious such a matrix as called for in claim 18, which in claim 22 comprises an open-cell foam material.

As regards claim 23, the prior art does not show or make obvious such a matrix as called for in claim 18, which in claim 23 comprises a cotton or viscose gauze.

As regards claim 33, the prior art does not show or make obvious "hydropobic hydrocarbon chains projecting" from the cellulose fibers.

IV - The References Are Not Obviously Combinable

As indicated above, Wiegand discloses a sorbent for placement on top of oil floating on water so that the sorbent will absorb and remove the oil. The sorbent includes cellulosic fibers, preferably a minor amount, which can be unsized cellulosic fibers, sized cellulosic fibers, or a mixture of both. If used, the sizing material is mostly wax.

Novak relates to papermaking and particularly to providing a paper which is water resistant or has improved wet strength by precipitating a water insoluble, fatty acid soap on the fibers.

There is no reasonable relationship between Novak and Wiegand as one has to do with papermaking and the other has to do with removing pollutant oil from the surface of water. The person of ordinary skill in the art of Wiegand would have no reason to even consider the field of papermaking, even if such a person were charged with knowledge of Novak. There is nothing in either Novak or Wiegand which would have led the person of ordinary skill in the art to use Novak's sizing material, intended and taught for an entirely different purpose, i.e. to present foaming during papermaking, in place

of Wiegand's sizing material. No advantage is taught by the substitution of one for the other, and such a substitution becomes "obvious" only after one has read Appellant's specification.

Moreover, a consideration of Wiegand as a whole suggests that there is no particular benefit to be achieved by the use of any sizing agent at all. Why then would the person of ordinary skill in the art want to use any sizing agent, let alone a different sizing agent for which no particular benefit is apparent? Appellant maintains that what would be obvious would be the use of no sizing agent at all, as use of a sizing agent merely increases the cost of the Wiegand system without any apparent benefit.

V - Even If It Were Obvious To Combine The References, Such A Combination Would Not Reach The Claimed Subject Matter

Even if it were obvious to the person of ordinary skill in the art at the time the present invention was made to modify Wiegand by substituting the sizing agent of Novak for that of Wiegand, the resultant reconstructed Wiegand subject matter would not correspond to Appellant's invention as claimed. In other words, the resultant combination does not correspond with Appellant's claims, and this is so for the following reasons.

1. The water proofing material disclosed by Novak is not a fatty acid, but is instead precipitated metallic fatty acid soap. See page 1, lines 1 to 4 of Novak which states as follows:

An object of the present invention is to produce a sizing material for use in treating fiberous material for use in paper, comprising a water insoluble, fatty acid **soap.** (emphasis added)

Also see page 1 , lines 41 to 48 of Novak:

...and the large proportion of unsaponified fatty acid which is present in emulsified form reacts directly with the aluminum sulfate to form the same aluminum soap that the resultant precipitate, **which is the final waterproofing agent,**... (emphasis added)

The emulsion produced in the process of Novak includes a saponifiable fatty acid in equilibrium with the precipitated fatty acid soap. In order to keep the presence of the soap to a minimum (to decrease foaming), the equilibrium of the reaction is in favor of the formation of a saponifiable fatty acid. However, **the saponifiable fatty acid is not the water proofing agent as is evidenced in the above passages;** rather, it provides a source of the active precipitate.

The passage referred to by the examiner on page 1, line 89 of Novak, merely mentions that fatty acids other than oleic acid may be used in this process of using a precipitated fatty acid soap as the water proofing agent. It does not teach

that these other fatty acids may **themselves** be used as sizing agents.

Accordingly, it is clear that a combination of Wiegand and Novak would have resulted in the sizing of the Wiegand absorbent with a precipitated fatty acid **soap**, as taught by Novak, but not what is claimed. In contrast, the sizing material of the present invention comprises aliphatic carboxylic acids of a given chain length. Soaps do not form the sizing material of the present invention.

2. Neither Wiegand nor Novak relates to a filter. In this regard, Appellant's main claim 18 calls for a filter material comprising a sheet-like matrix....

The rejection states that the Wiegand oil sorbent mat is a filter (which it is not) and comprises a non-woven sheet-like matrix, with reference to column 2, line 13 of Wiegand. But this is not accurate. The mat-like structure is one embodiment of what the Wiegang sorbent material is. It is not an element separate from the material comparable to Appellant's material which is incorporated in the "sheet-like matrix". Thus, Appellant's "filter material comprising a sheet-like matrix" has "incorporated" therewithin,

a material comprising a base formed substantially of cellulous fibers onto which is adsorbed a composition comprising one or more aliphatic carboxylic acids having

hydrocarbon chains consisting of 8 to 20 carbon atoms.

To briefly reiterate, the filter of the present invention comprises two components, namely (1) the matrix and (2) the material which is incorporated within the matrix, whereas Wiegand only has a "mat-like structure".

Appellant's specification at page 3 states as follows concerning the matrix:

The matrix of the first aspect of the invention may be fabricated from a number of materials, including non-woven fiberous materials, open-cell foam materials or a cotton or viscose gauze. The unloaded matrix advantageously has a density not greater than 0.25gcm^{-3} , and preferably from 0.01 to 0.18gcm^{-3} . A particularly preferred matrix has a thickness of around 3mm and a density in the region of 0.1gcm^{-3} .

3. Appellant must also reemphasize the fact that the recitation of a "filter" defines what Appellant's invention is. It is not merely a statement of intended use which can be properly brushed aside.

The desk dictionary of undersigned, i.e. The Random House College Dictionary (1975) defines the noun "filter" as "any substance, as cloth, paper, porous porcelain, or a layer of charcoal or sand, through which liquid, air, smoke, or the like is passed to remove suspended impurities or to recover solids" (emphasis added). Again, Wiegand does not teach any material through which anything is passed, and does not disclose

anything which can be reasonably defined as a "filter"; a sorbent for placement on top of water which is polluted with oil, and which will absorb the oil and thus remove it from the water, is not a filter because there is no concept of **passing anything through** the sorbent of Wiegand.

As regards the Examiner's refusal to give weight to "filter" in Appellant's claims, attention is respectfully invited to *In re Steppan et al*, 156 USPQ 143, 147. Here, the preamble of claim 25 read as follows:

25. An acid phosphate of a condensation product of....

The appellants argued that the expression "condensation product" defined "what the acid phosphate is", and the court reversed the rejection. Also see the somewhat analogous case of *In re Garnero*, 162 USPQ 221, 223, where in effect the Court held that the claim language "interbonded one to another by interfusion" defined the structure of the product. See also *In re Bulloch et al*, 203 USPQ 171, 174 (CCPA 1979).

Further in this regard, there should be no doubt that, as a general rule, all subject matter recited in a claim must be given full weight. A sometimes exception is when the claim preamble only calls for an intended use. The leading case in this area is *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

In *Kropa v. Robie*, the court reviewed thirty-seven of its own prior decisions in cases where it had determined whether or not the claim preamble must be given effect. The court stated:

..., in those *ex parte* and interference cases where the preamble to the claim or count was expressly or by necessary implication given the effect of a limitation, the introductory phrase was deemed essential to point out the invention defined by the claim or count. In the latter class of cases, the preamble was considered necessary to give life, meaning and vitality to the claims or counts. Usually, in those cases, there inhered in the article specified in the preamble a problem which transcended that before prior artisans and the solution of which was not conceived by or known to them. The nature of the problem characterized the elements comprising the article, and recited in the body of the claim or count following the introductory clause, so as to distinguish the claim or count over prior art.

The same situation exists in the present case.

The more recent cases are fully consistent with *Kropa v. Robie*. Attention is therefore first invited to *Perkin-Elmer v. Computervision*, 221 USPQ 669, 675 (Fed. Cir. 1984), where the introductory clause of claim 1 called for a "unity magnification catoptric image-forming system...." In giving weight to such recitation, the court stated:

The system of claim 1 is one of unity magnification and is image forming. Those limitations appear in the preamble, but are necessary to give meaning to the claim and properly define the invention. [citations omitted]

In *Loctite v. Ultraseal*, 228 USPQ 90, 91-93, the introductory portion of claim 1 of the '012 patent read as follows:

1. An anaerobic curing sealant composition adapted to remain in a liquid, non-polymerizing state....

The court stated:

Although it appears in the preambles of the '012 patent claims, the term "anaerobic" breathes life and meaning into the claims and hence is a necessary limitation to them.
[citation omitted]

The holdings of the lower court were vacated, and the case was remanded.

Attention is next invited to *In re Stencel*, 4 USPQ2d 1071 (Fed. Cir. 1987) where the introductory clause of claim 1 called in part for a "driver for setting a joint of a threaded collar, ... the collar having plastically deformable lobes on its longitudinal exterior ..., the driver comprising: . . .".

In reversing the rejection, the Court stated:

We conclude that it would not have been obvious to [provide the applicant's invention] unless one had in mind the purpose taught by appellant. This purpose, set forth in the claims themselves, "is more than a mere statement of purpose; and that language is essential to particularly point out the invention defined by the claims." [citations omitted; bracketed material added]

Similarly, in the present case, the purpose of the present applicant to carry out a filtering operation is not to be found

in the applied prior art; this purpose, set forth in applicant's claims which call for a "filter", clearly "is essential to particularly point out the invention as defined by the claims".

Lastly, attention is respectfully invited to *Corning Glassworks v. Sumitomo Electric*, 9 USPQ2d 1962, 1965-66 (Fed. Cir. 1989). Here, claim 1 of the '915 patent recited an "optical wave guide comprising...." The Court stated:

In this case, the question of anticipation turns on claim interpretation,.... [citation omitted] If the claims are given Sumitomo's suggested interpretation, the [prior art] patent anticipates [claims 1 and 2 of the '915 patent]; otherwise, it does not. In particular, the dispute focuses on the interpretation and effect of the words "An optical wave guide" in claim 1. [bracketed words added]

Sumitomo argued that the fiber of the prior art patent could "inherently" function as a "waveguide", and therefore the words "An optical waveguide" should be ignored because "the preamble is not a limitation when it merely states a purpose or intended use and the remainder of the claim completely defines the invention". (Italics in the court decision)

In affirming the lower court's decision of validity (no anticipation), the court stated in part as follows:

The effect preamble language should be given can be resolved only on review of the entirety of the [disclosure] to gain an understanding of what the inventors actually invented and intended to encompass by the claim. Here, the 915 specification makes clear that the inventors were working on the

particular problem of an effective optical communication system not on general improvements in conventional optical fibers. To read the claim in light of the specification indiscriminately to cover all types of optical fibers would be divorced from reality. The invention is restricted to those fibers that work as waveguides as defined in the specification, which is not true with respect to fibers constructed with the limitations of paragraphs (a) and (b) only. Thus, we conclude that the claim preamble in this instance does not merely state a purpose or intended use of the claimed structure [citation omitted]. Rather, those words do give "life and meaning" and provide further positive limitations to the invention claimed [citations omitted]. Thus, contrary to Sumitomo's argument, the core and cladding limitations set out in paragraphs (a) and (b) are not the only limitations of the claim [citation omitted]. The claim requires, in addition, the particular structural relationship defined in the specification for the core and cladding to function as an optical waveguide.

Similarly, the introductory clause of applicant's claim 1 is also a requirement of applicant's invention. The Court continued:

Viewed in this manner, the fact that the [prior art] luminescent fiber could inherently transmit information for a few meters becomes irrelevant. The [prior art] patent does not disclose all the limitations of the claimed "optical waveguide" as that term is structurally defined by the '915 inventors.

The above quoted words of the Federal Circuit from *Corning Glass Works v. Sumitomo Electric* provide guidance for the present case. Wiegand does not disclose or make obvious a filter.

In the Final Rejection, the Examiner states that "the porous web or mat-like structure of the reference [Wiegand] is structurally indistinguishable from a 'filter' and is therefore inherently capable of being employed as a filter." This is pure speculation on the Examiner's part. The Wiegand sorbent is not disclosed as being a filter and there is no way to know if it could be used as a filter, even if it were obvious to do so (which is untaught, and therefore not obvious). Moreover, even if the material were "**capable of** being employed as a filter", this does not mean it would have been obvious to do so. Appellant respectfully notes *Ex parte Levengood*, 28 USPQ 2d 1300, 1301, 1302 (BPAI 1993) in which a similar situation was addressed.

The Examiner notes that each reference discloses a different aspect of the claimed process. The Examiner also notes that all aspects were "well known in the art." The Examiner then indicates that [to do what Levengood did] was "**well within the ordinary skill of the art** at the time the claimed invention was made."***

...In order to establish a *prima facia* case of obviousness, it is necessary for the Examiner to present **evidence** [footnote citation omitted] preferably in the form of some teaching suggestion, incentive or inference in the applied prior art... to arrive at the claimed invention [citations omitted]. ***

...That which is within the capabilities of one skilled in the art is not synonymous with obviousness. *Ex parte Gerlach*, 212 USPQ 471 (Bd. APP. 1980). [Underlining added, italics in original.]

Novak also teaches nothing at all about filters; instead, the teaching is concerned with sizing of paper. Thus, it is submitted that the skilled person would not have considered the combination of Novak with Wiegand.

In fact, Wiegand provides a number of cross references to documents which teach sizing materials indicated to be suitable for Wiegand. See for example column 2, lines 7 to 10, and column 3, lines 45 to 48, which reference U.S. patents 3,630,891 and 2,754,206. These documents, which it is noted are classified in the same field as Wiegand, disclose a number of sizing agents; see '891 column 1, lines 49 to 56 and column 2, lines 25 to 35. It would seem that the skilled person, when trying to provide an alternative sizing material to that disclosed in Wiegand, if any sizing material at all were desired, would have been directed by Wiegand to the content of the cross-referenced documents, as opposed to a document in the field of papermaking.

4. Even if the skilled person were to be directed to Novak, the method of applying the functional groups as claimed in the present invention is in complete contrast to that of Novak. With the present invention, the specific carboxylic acids are **adsorbed** onto cellulose fibres. Generally speaking, the term "adsorbed" is taken to mean some form of chemical bonding between two entities. In the present case, as quoted

above from Appellant's specification, adsorption may occur through hydrogen bonding or through the formation of cellulose esters.

It is thought that the carboxylic acids are adsorbed onto the surface of the cellulose fibres by way of the carboxyl -COOH functional group, either through hydrogen bonding or through the formation of cellulose esters containing an -O-CO-R group formed with the hydroxyl -OH groups on the cellulose rings. However the carboxylic acids are bonded to the cellulose fibres, the result is that the material of the first aspect of the present invention comprises cellulose fibres from which project hydrophobic hydrocarbon chains. When the material is applied to a mixture of water and hydrocarbon pollutants, the hydrophobic hydrocarbon tails of the carboxylic acid residues serve to attract the hydrocarbon pollutants to the material and to repel water, thereby providing the required separation. The material, incorporating the hydrocarbon pollutants, can then be gathered up and used as a fuelstock.

See pages 2 and 3 of Appellant's specification.

In complete contrast, the water-proofing agent of Novak is a precipitate (See Novak, page 1, lines 3 to 5, line 45 and lines 81 to 84) which is precipitated onto the fibers as is recited in the claim of Novak on page 2, lines 77 to 80:

In the sizing of fiberous material, the method which comprises precipitating on the fiberous material during heating thereof an insoluble size...

As such, it is clear that the water proofing material of Novak is precipitated onto the fibers as opposed to the adsorption of the present invention. Therefore, even if the combination were

obvious, respectfully denied by Appellant, for the reasons given above, such a combination would not reach the claimed subject matter.

VI - Subsidiary Claims Add Additional Non-Obvious Subject Matter

Claim 22 adds to claim 18 the feature that the matrix, which according to claim 18 is distinct from the base of cellulose fibers, comprises an open-cell foam material. Appellant does not see that Wiegand discloses or makes obvious any such subject matter.

Claim 23 adds to claim 18 that the matrix is a cotton or viscose gauze. The closest that Wiegand comes to this is the possible use of a net-like structure or bag as disclosed at col. 2, lines 23-26 as follows:

However, the polymeric and cellulosic fibers may also be loosely blended into an unbonded structure which is retained by a fine mesh net-like enclosure suitably a bag or a boom.

The provision of a bag is distinctly different than a matrix of cotton or viscose gauze as called for in claim 23.

Claim 33 adds to claim 18 the fact that the aliphatic carboxylic acids adsorbed onto the cellulose fibers comprise hydrophobic hydrocarbon chains projecting therefrom. Neither reference discloses hydrophobic hydrocarbon chains projecting

from cellulose fibers, and therefore no possible combination could reach claim 33.

CONCLUSION

The Examiner has not established a *prima facia* case of obviousness and therefore has not met his burden. There is no reason why the person of ordinary skill in the art of Wiegand would have gone to the papermaking art to find a sizing material when Wiegand makes other suggestions in its own field. Moreover, there is nothing to be gained by going to and adopting the teachings of Novak which relate to solving an entirely unrelated problem of foaming in papermaking, and this is so even if one wished to use some sort of sizing agent in Wiegand although there appears to be no reason to do so in view of the additional costs generated by the use of a sizing agent in Wiegand without any apparent benefit.

Perhaps even more importantly, Appellant's claimed invention would not be reached even if the combination as proposed were obvious. No filter would be obtained, and certainly there would be produced no filter as called for in claim 18 comprising (1) a matrix, (2) a base incorporated in the matrix, the base being formed substantially of cellulose fibers, and (3) an aliphatic carboxylic acid having hydrocarbon chains consisting of 8-20 carbon atoms adsorbed on the cellulose fibers, let alone what is called for in claim 33

wherein the hydrophobic hydrocarbon chains of the aliphatic carboxylic acid project outwardly from the cellulose fibers.

The prior art provides no reasonable expectation of obtaining any such product whereby organic and other pollutants can be removed from liquids and gases by filtration as per the first paragraph of Appellant's specification.

Appellant respectfully repeats that the Examiner has not met his burden in establishing that the present invention would have been obvious to a person of ordinary skill in the art at the time the present invention was made. The rejection should therefore be reversed, and such is respectfully prayed.

Respectfully submitted,

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APPENDIX

18. A filter material comprising a sheet-like matrix in which is incorporated a material comprising a base formed substantially of cellulose fibers onto which is adsorbed a composition comprising one or more aliphatic carboxylic acids having hydrocarbon chains consisting of 8 to 20 carbon atoms.

19. A filter material as claimed in claim 18, wherein the one or more aliphatic carboxylic acids have hydrocarbon chains consisting of 10 to 18 carbon atoms.

20. A filter material as claimed in claim 18, wherein the one or more carboxylic acids are selected from the group comprising stearic acid and palmitic acid.

21. A filter material as claimed in claim 18, wherein the matrix comprises a non-woven fibrous material.

22. A filter material as claimed in claim 18, wherein the matrix comprises an open-cell foam material.

23. A filter material as claimed in claim 18, wherein the matrix comprises a cotton or viscose gauze.

30. The filter material of claim 18 wherein the matrix, prior to incorporation therein of said material comprising a base formed substantially of cellulose fibers, has a density no greater than 0.25 gcm^{-3} .

31. The filter material of claim 30 wherein said density is 0.01 to 0.18 gcm⁻³.

32. The filter material of claim 31 wherein said matrix has a thickness of about 3 mm to about 4 mm.

33. The filter material of claim 18 wherein said cellulose fibers, by virtue of said one or more aliphatic carboxylic acids being adsorbed thereon, comprise hydrophobic hydrocarbon chains projecting therefrom.